U 8960 - 2

ueb r

Utah Economic and Business Review

Volume 39
Number 12
December 1979

RECEIVED
NOV 28 1980

BEBR

college of business
bureau of economic and business research
university of utah

Utah's Great Basin Region Energy Facility Siting Study

by *Rodger Weaver*, Senior Research Economist

Editor's Note: *This is the first in a series of* **Utah Economic and Business Review** *articles discussing the findings of a major study by the Utah Consortium for Energy Research and Education (UCERE) on the suitability of the Great Basin portion of the State of Utah as a host area for the siting of a substantial volume of electricity generation capacity to serve Western States energy markets.*

The Consortium consists of the University of Utah, Utah State University and Brigham Young University. Project coordinator is Dr. Ronald J. Pugmire, associate vice president for research at the University of Utah. Principal investigators on the project are R. Thayne Robson, University of Utah, Terrence F. Glover, Utah State University, and Richard M. Oveson, Brigham Young University. The project was funded by the U.S. Department of Energy under Contract No. DE/ASO 3-77 SFO-1484.

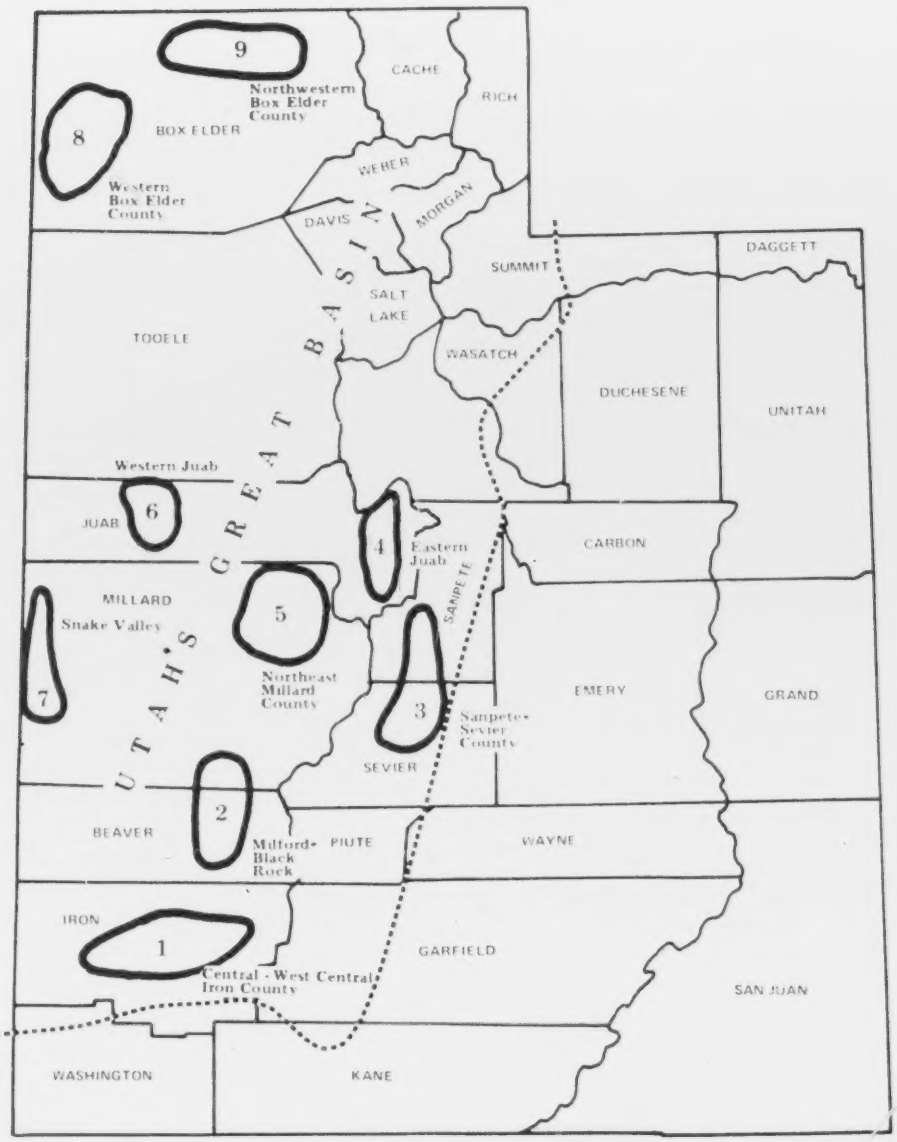
The overall scope and purpose of the work, entitled "The Utah/Great Basin Energy Facility Siting Study," along with a summary of its major findings, conclusions and recommendations are discussed here. Subsequent articles in the series will deal with other major components of the study.

- Abundant air resources (i.e., lack of excessive air quality restrictions)
- Sparse population
- Adequate water supply
- Intermediate location relative to fuel resources (coal) and West Coast energy markets

These characteristics, which make Utah's western desert area – the Utah portion of the Great Basin region – the most acceptable area in the state for Intermountain Power Project's huge coal-fired power generating plant, also provide the area with important potential for the siting of substantial

Figure 1

Potential Power Plant Siting Zones
in the Great Basin Area of Utah



UTAH ECONOMIC AND BUSINESS REVIEW

(Issn 0042 - 1405)

Vol. 39 No. 12

Second class postage paid Salt Lake City, Utah. Issued ten times per year by the Bureau of Economic and Business Research, University of Utah, at Salt Lake City, Utah

Published 10 times per year and up to ten copies sent free on request by the Bureau of Economic and Business Research, University of Utah, Salt Lake City, Utah 84112. Additional copies available at ten cents per copy.

additional electricity generation capacity. This is the conclusion reached by the Utah Consortium for Energy Research and Education in its recently completed Utah/Great Basin Energy Facility Siting Study (the "Great Basin Study") for the U.S. Department of Energy.

Described as a "siting zone prequalification process," the study had as its ultimate objective the identification of a set of zones (geographic areas) within which exist a number of suitable specific sites for specific power plant projects. The result has been naming by the investigators of nine such zones in Utah as suitable for in-depth consideration as potential areas within which power plant sites can – in all probability – be located. These zones, shown in Figure 1, include:

1. Central-West Central, Iron County.
2. The Milford-Black Rock area of Beaver and Millard Counties (including the area of Roosevelt Springs for studying coal-geothermal hybrid generation).
3. Sanpete-Sevier County.
4. Eastern Juab County.
5. Northeast Millard County.
6. Western Juab County in the Fish Springs Flat area.
7. Southeast Snake Valley near the Nevada border.
8. Western Box Elder County
9. Northwestern Box Elder County

No claim is made that these zones include all the possible power plant sites in Utah's Great Basin area. Further study may result in identification of other suitable sites.

According to the summary report prepared by the Consortium, determination of siting zone suitability requires "reasonable assurance that sites (in the zone) will meet all environmental and administrative standards and, therefore, qualify for actual construction and operation of plants."

Such prequalification is intended to reduce the likelihood of preparation of power plant proposals for areas which appear to be unable to satisfy environmental standards. Proposal preparation and governmental responses to such proposals are extremely costly – in both time and money. Therefore, the kind of prequalification work done in the Great Basin Study is intended to insure that such costs are incurred only in proposals which have reasonable chance for success.

Among the important questions addressed by the research team in its consideration of the prequalification issue are the following:

1. Does expected future growth in demand for electric power justify efforts to identify and evaluate potential power plant siting zones in the Western U.S. and in particular in Utah's Great Basin region?

2. What technologies would be most appropriate for the different zones and what plant sizes appear appropriate from both private and social decision making viewpoints, if generation facilities are to be located in the Great Basin area of Utah?

3. Under what conditions would the siting of plants in the various zones be economically feasible, given that environmental considerations indicate the capacity of the zones to support a large volume of electricity generation?

4. How would the economies of the local area and of the state be affected by power plant development? To what extent would the indigenous population benefit from the higher income construction and operations jobs? How much of this labor force would consist of in-migrants? What additional load would be placed on public and private suppliers of goods and services? What would be the magnitude of the boom-bust cycle associated with plant construction and how could this problem be mitigated?

5. How does the legal-regulatory process work in qualifying specific power plant projects, and how can public and private parties work efficiently together to insure that private development interests can be pursued while maintaining compliance with environmental standards and requirements, and implementing projects in such a way as to impose minimal social and economic disruption resulting from power plant construction and operation?

6. How could technical analysis of these issues be interfaced with the state's political structure and processes in order to insure that issues relevant to ultimate siting decisions would be addressed, and that the findings of the study would be incorporated in the decision process?

To answer these questions and accomplish the study objectives, the following set of six work items or "project tasks" were outlined:

1. Review and evaluate available energy facility siting literature.

2. Collect and assess electricity demand methodologies and evaluate the ranges of plausible future demand growth scenarios in the Western United States through the next two decades.

3. Conduct an initial screening of Utah's Great Basin region to identify those areas which should be excluded (on institutional and environmental grounds) from further consideration as potential power plant siting zones, thereby identifying the remaining areas for in-depth analysis.

4. Develop weighting factors and implement an aggregation technique for evaluating the desirability of the alternative siting zones.

5. Conduct siting zone-specific analyses of (a) environmental impacts and restrictions, (b) seismic evaluations, (c) siting zone appropriate technology, (d) appropriate plant sizing, (e) fuel source considerations, (f) economic feasibility, including fuel transportation and power transmission, (g) socioeconomic impacts, (h) water quality and quantity considerations.

6. Conduct a case study of the legal-regulatory process as it has been implemented in the case of the Intermountain Power Project (IPP), in order to determine its strengths and weaknesses as a mechanism for reconciling conflicting interests relating to capacity expansion, environmental protection, economic development, and socioeconomic impact mitigation.

Work on each of these tasks has resulted in the production of separate monographs detailing the methodologies and information sources utilized and setting out the findings and conclusions in each instance. While several of these monographs will serve as the basis for future articles in this "energy facility" series, it is appropriate that a brief summary of the study's basic findings be presented here. Specifically, these are that:

1. Average annual growth in demand for electricity in the Western United States through the year 2000 will be in the range of 2.7 to 4.7 percent. (The 4.7 percent of growth rate represents current expectations of the utility companies presently generating electricity in the Western States.)

2. By coupling past experience with present policy and practice, a set of factors can be identified and utilized to screen specific geographical areas in terms of suitability as power plant sites.

3. Factors which may constitute barriers to or constraints against power plant siting in any specific area are (a) air quality deterioration, (b) water availability and its current and alternative uses, (c) lands designated for incompatible uses, (d) endangered animal or plant species, (e) surface slope restrictions, (f) known earthquake faults or areas with seismic problems, (g) adverse and unacceptable socioeconoimc impacts, (h) regulatory delays or excessive costs, (i) uneconomic transportation requirements, and/or (j) availability of coal as fuel source.

4. Larger power plants have a demonstrated superiority over smaller plants in terms of thermal efficiency, capital costs per unit of output, and unit costs of operation and maintenance.

5. Economic feasibility of proposed projects must be evaluated in terms of all factor inputs and all costs – including environmental costs.

6. Present knowledge and technology make possible the development of planning and management programs to facilitate adjustments with respect to the socioeconomic impacts on specific sites.

7. Sufficient coal exists in Utah and surrounding states to supply any foreseeable level of power generation in the Great Basin. However, differences in coal quality and in mining and transportation costs will require site analysis to be particularly sensitive to these factors.

8. Energy development in the Great Basin area will undoubtedly involve transfer of much presently developed water from agricultural to energy uses.

9. Present regulations regarding power plant siting in the Great Basin do not adversely affect the proposed construction of Intermountain Power Project's facility in Millard County.

10. Availability of geothermal resources in the Great Basin warrants further study of this energy source.

In summary, one of the most important findings of the investigators is that technical analytical research of the kind conducted by the Utah Consortium for Energy Research and Education in the Great Basin Study can be successfully interfaced with the requirements of public and private sector decision makers. In light of this finding, the Utah Energy Conservation and Development Council has recommended that the Utah/Great Basin Energy Facility Siting Study be extended to include the entire State of Utah. It is also strongly recommended that such analysis be extended to include contiguous areas of Nevada, Wyoming and Colorado, and that explicit analysis of tradeoffs in these areas among all types of potential energy development be undertaken.

Utah Business Statistics

Statewide Statistical Data

	Oct. 1979	Sept. 1979	Oct. 1978	% Chg. From Year Ago	12 Mo. Average Ending Oct. 1979	12 Mo. Average Ending Oct. 1978	% Chg.
Agriculture							
Cash Receipts from Farm Marketings (thous. of dol.)*	51,915	50,981	43,998	17.3	41,131.8	32,644	26.0
Livestock and Livestock Products (thous. of dol.)	39,482	36,072	34,944	13.0	31,171.2	25,133	24.0
Crops (thous. of dol.)	12,132	14,909	9,049	34.1	9,958.9	7,511.8	32.6
Avg. Prices Rec'd by Farmers (15th of each mo.) (dol.)							
Beef Steers and Heifers (cwt) (thou.)	68.00	70.30	56.40	20.6	67.9	48.2	40.9
Lambs (cwt)	65.50	67.40	61.00	7.4	62.5	57.9	7.9
Turkeys (per lb.)	.460	.490	.500	-8.0	0.5	.43	16.3
Milk, Wholesale (cwt)	12.10	11.80	10.90	11.0	11.5	10.00	15.0
Alfalfa Hay, Baled (per ton)	53.40	51.50	46.00	16.1	51.1	50.9	0.4
Livestock Slaughtered (live weight)							
Cattle (thous. of lbs.)	18,037	14,221	20,041	-10.0	16,173.0	19,911	-18.8
Calves (thous. of lbs.)	na	na	24		na	25	na
Sheep and Lambs (thous. of lbs.)	309	191	280	10.4	217.4	225	-3.4
Hogs and Pigs (thous. of lbs.)	2,987	2,482	2,057	45.2	2,317.5	1,858	24.7
Finance							
Loans, Total, Utah Member Banks (mil. of dol.)[a]	3,157	3,086	2,882	9.5	3,017.9	2,746	9.9
Investments, Total, Utah Member Banks (mil. of dol.)[a]	829	825	801	3.5	830.3	761	9.1
Deposits, Total, Utah Member Banks (mil. of dol.)[a]	3,909	3,859	3,587	9.0	3,775.8	3,456	9.3
Demand Deposits of Banks, Total, Utah (mil. of dol.)[a]	55	46	57	-3.5	54.8	53.5	2.4
Other Demand Deposits, Total, Utah (mil. of dol.)[a]	1,289	1,243	1,150	12.1	1,161.6	1,129	2.9
Time Deposits, Total, Utah (mil. of dol.)[a]	2,565	2,570	2,380	7.8	2,560.4	2,276	12.5
Savings, Savings and Loan Association (mil. of dol.)[b]	1,670.6	1,649.9	1,478.6	13.0	1,583.6	1,443.9	9.7
Sale of U.S. Savings Bonds, Series E & H (thous. of dol.)	5,177.0	1,983.0	2,321.3	123.0	2,507.8	1,725.2	45.4
New Corporations (no.)	442	343	391	13.0	409.3	395	3.6
Tax Collections by the State of Utah (thous. of dol.)							
Total Tax Collections	41,625.8	31,425.4	33,975.3	22.5	70,175.6	60,483.1	16.0
Sales & Use Tax	15,107.6	3,032.6	8,232.3	83.5	30,394.9	37,806.1	-19.6
Motor Fuel Tax	8,086.2	2,687.6	6,173.1	31.0	5,382.4	4,575.0	17.6
Individual Income Tax	10,970.2	21,024.6	9,554.1	14.8	23,592.1	19,479.0	21.1
Corporation Franchise Tax	3,571.7	1,747.7	5,168.3	30.9	3,099.8	2,829.5	9.6
Employment							
Civilian Labor Force (thous.)[c]	632.3	634.9	596.5	6.0	613.2	580.2	5.7
Total Employed Persons	609.3	611.9	574.8	6.0	587.9	553.3	6.3
Unemployed	23.0	23.0	21.7	6.0	28.4	26.8	6.0
Percent Total Labor Force	3.6	3.6	3.6	0.0	4.6	4.6	0.0
Employees on Nonagricultural Payrolls (thous. of jobs)	574.0	570.4	542.4	5.8	551.5	518.3	6.4
Manufacturing	87.6	87.2	84.1	4.2	84.5	78.7	7.4
Mining	17.9	18.0	17.0	5.3	17.4	15.6	11.5
Contract Construction	39.4	40.1	37.1	6.2	36.8	34.6	6.4
Transportation, Communication and Utilities	35.1	35.5	32.7	7.3	33.8	31.2	8.3
Wholesale Trade	35.5	35.7	32.0	10.9	34.2	30.9	10.7
Retail Trade	101.5	100.6	97.1	4.5	99.4	87.4	13.7
Finance, Insurance and Real Estate	26.3	26.5	24.8	6.0	25.6	24.1	6.2
Services[d]	104.2	102.7	94.0	10.9	98.2	89.6	9.6
Federal Government	36.2	36.8	36.3	-0.3	37.0	37.0	0.0
State Government[e]	34.0	30.1	33.7	0.9	32.0	31.3	2.2
Local Government[e]	56.3	57.2	53.5	5.2	54.5	50.6	7.7
Average Weekly Hours							
Manufacturing	38.3	39.1	38.6	-0.8	39.1	39.6	-1.3
Mining	41.9	41.1	42.5	-1.4	41.8	42.7	-2.1
Contract Construction	37.9	38.2	40.0	-5.3	37.3	40.1	-7.0
Wholesale Trade	37.5	37.7	37.0	1.4	37.4	36.6	2.2
Retail Trade	28.2	28.4	27.9	1.1	28.1	28.9	-2.8
Amount of Unemployment Comp. (thous. of dol.)	2,702.5	2,495.7	2,522.6	7.1	3,883.3	3,179.1	22.2
Construction							
Total Construction (thous. of dol.)	146,874	92,198	109,933	33.6	119,975.4	108,317	10.8
Residential	56,727	52,890	67,982	-16.6	61,228.1	59,053	3.7
Nonresidential	86,016	35,851	27,928	208.0	45,942.7	38,118	20.5
Public Works and Utilities	4,131	3,457	14,023	-70.5	12,805.7	11,269	13.6
Total Permit Construction (thous. of dol.)[f]	137,295.1	103,097.4	90,770.4	51.3	104,003.1	96,473.3	7.8
Residential	49,370.9	49,244.2	55,480.0	-11.0	56,269.6	63,955.6	-12.0
Nonresidential	77,087.6	43,102.7	29,249.0	163.6	40,635.3	27,572.0	47.4
Additions, Alterations and Repairs	10,836.6	10,750.5	5,741.4	88.7	6,843.2	6,022.7	13.6
New Dwelling Units (no.)	1,336	1,297	1,471.0	-9.2	1,492.8	1,889.8	-21.0
Tourism/Travel							
Air Passengers (total no. on and off)	355,455	370,384	326,730	8.8	381,865.8	345,381	10.6
Highway Traffic Count Across State Lines	38,847	44,933	41,270	-5.9	38,208	41,502	-7.9
Transient Room Taxes (thous. of dol.)	151.2	125.8	47.9	215.7	189.4	151.6	24.9
Visits, State, Nat'l. Parks, Monuments (thous.)	732.7	1,368.7	755.4	-3.0	1,018.7	1,148.4	-11.3
General							
New Cars and Truck Sales							
C.P.I. (National Index — 1967=100)	225.4	223.4	200.9	12.2	212.8	192.6	10.5
Telephones in Service, (Business)	75,163	74,653	71,520	5.1	73,107.6	69,410	5.3
Telephones in Service, (Residential)	404,326	402,303	387,199	4.4	393,511.3	373,957	5.2
Electric Customers (Commercial)	32,105	31,864	30,891	3.9	31,559.2	29,809	5.9
Electric Customers (Residential)	343,638	341,985	329,924	4.2	338,489	322,060	5.1
Natural Gas Customers (Residential & Commercial)	357,285	357,234	343,272	4.1	357,541	339,150	5.4
Natural Gas Customers (Industrial)	635	617	663	-4.2	659	670	-1.7
Production							
Net Electric Power Utilized (mil. of kwh)	957.7	1,030.2	925.5	3.5	903.9	893.5	1.2
Crude Oil to Refineries (thous. of bbls.)	4,864.5	4,807.7	5,317.2	-8.5	4,957.7	5,164.5	-4.0
	(Sept. '79)	(Aug. '79)	(Sept. '78)		(Sept. '79)	(Sept. '78)	
Crude Oil Production (thous. of bbls.)	2,266.0	2,301.3	2,702	-16.1	2,654.8	2,835.4	-6.4
Natural Gas Production (mil. of cu. ft.)	6,284.8	5,836.6	6,403.8	-1.9	6,209.2	6,609.5	-6.1
Coal (thous. short tons)	1,327	947	1,130	17.4	995.4	828	20.2
Copper (thous. metric tons)[g]	15,486	17,270	16,480	-6.0	15,612.2	15,785	-1.1

Utah Business Statistics

MULTI-COUNTY PLANNING DISTRICT STATISTICAL DATA	Oct. 1979	Sept. 1979	Oct. 1978	% Chg. From Year Ago	12 Mo. Average Ending Oct. 1979	12 Mo. Average Ending Oct. 1978	12 Mo. Average Ending % Chg.
Wasatch Front (Salt Lake, Tooele, Davis, Weber, Morgan Counties)							
Non Ag. Employment (thous.)*	406.2	404.1	384.8	5.6	393.4	369.4	6.5
Auth. Permit Construction (mil. of dol.)	83.8	64.2	59.8	50.2	66.3	62.2	6.6
New Dwelling Units	812	793	948	14.3	933.7	1,215	23.2
Postal Receipts (thous.)	4,494.2	3,727.4	4,285.1	4.9	4,448	3,980.9	11.7
Electric Customers (Residential)	263,364	262,020	253,281	4.0	259,915	247,896	4.8
Electric Customers (Commercial)	20,934	20,814	20,034	4.5	20,575	19,447	5.8
Natural Gas Customers (Residential)	265,524	265,659	254,643	4.3	265,755	251,700	5.6
Natural Gas Customers (Industrial)	466	454	493	5.5	468.8	485	3.3
Department Store Sales (mil. of dol.)	25,916	23,916	23,121	12.1	25,966.9	25,001	3.9
Salt Lake City							
Non Ag. Employment (Salt Lake and Tooele) (thous.)*	309.1	298.4	283.9	8.9	290.6	273.8	6.1
Auth. Permit Construction (mil. of dol.)*	34.6	15.2	9.3	272.0	13.5	7.7	75.3
New Dwelling Units	13	12	51	74.5	49.0	74	33.8
Postal Receipts (thous.)	3,722.9	3,036.6	3,537.0	5.3	3,628.6	3,024.4	20.0
Natural Gas Customers (Residential)	55,572	55,763	55,609	0.1	56,770.9	55,924	1.5
Natural Gas Customers (Industrial)	168	167	186	9.7	174.5	180	3.1
Telephones in Service. (Business)h	41,619	41,364	39,585	5.1	40,567.5	38,670	4.9
Telephones in Service. (Residential)h	206,677	205,945	197,689	4.5	202,086.0	192,265	5.1
Ogden							
Non Ag. Employment (Weber, Morgan, Davis) (thous.)*	97.1	96.1	91.7	5.9	94.6	91.1	3.8
Auth. Permit Construction (mil. of dol.)*	5.9	9.5	3.9	51.3	6.8	3.2	112.5
New Dwelling Units	118	47	51	131.4	47.6	35	36.0
Postal Receipts	334.3	303.6	316.4	5.7	349.5	280.9	24.4
Natural Gas Customers (Residential)	20,892	20,911	20,843	0.2	21,212.1	21,041	0.8
Natural Gas Customers (Industrial)	63	60	65	3.1	61.8	69	10.4
Telephones in Service. (Business)h	6,950	6,921	6,610	5.1	6,761.3	6,435	5.1
Telephones in Service. (Residential)h	42,238	42,099	41,109	2.7	41,579.1	40,180	3.5
Mountainlands (Utah, Wasatch, Summit Counties)							
Non Ag. Employment (thous.)*	73.2	73.1	68.8	6.4	70.0	65.3	7.2
Auth. Permit Construction (mil. of dol.)*	19.3	23.0	18.0	7.2	19.3	17.2	12.2
New Dwelling Units	278	236	258	7.8	296.7	356.1	16.7
Postal Receipts (thous.)	571.0	509.6	488.7	16.8	587.4	484.1	21.3
Electric Customers (Residential)	31,935	31,746	30,287	5.4	31,128.3	29,258	6.3
Electric Customers (Commercial)	2,964	2,935	2,756	7.5	2,890.3	2,688	7.5
Natural Gas Customers (Residential)	55,489	55,479	53,116	4.5	55,536.8	52,044	6.7
Natural Gas Customers (Industrial)	96	90	99	3.0	94.8	98	3.3
Provo							
Non Ag. Employment (thous.) (Utah Co.)*	68.1	67.6	63.8	0.8	64.3	60.2	6.8
Auth. Permit Construction (mil. of dol.)*	4.6	2.7	3.0	53.3	4.8	3.1	54.8
New Dwelling Units	101	51	53	90.6	74.0	70.5	5.0
Postal Receipts (thous.)	319.1	270.0	284.1	12.3	323.7	253.1	27.9
Natural Gas Customers (Residential)	14,568	14,505	14,057	3.6	14,625.6	13,984	4.6
Natural Gas Customers (Industrial)	43	43	48	10.4	45.6	47	3.0
Telephones in Service. (Business)h	6,253	6,181	6,220	0.5	6,068.8	5,932	2.3
Telephones in Service. (Residential)h	39,149	38,823	37,516	4.4	36,675.1	34,685	5.7
Central Utah (Juab, Millard, Sanpete, Sevier, Piute, Wayne Counties)							
Non Ag. Employment (thous.)*	13.7	13.4	12.8	7.0	13.0	12.0	8.3
Auth. Permit Construction (mil. of dol.)	1.6	2.0	1.9	15.8	2.2	2.2	0.0
New Dwelling Units	23	36	44	47.7	40.6	43.7	7.1
Postal Receipts (thous.)	64.9	64.1	60.5	7.3	70.9	62.6	13.3
Electric Customers (Residential)	8,799	8,798	8,433	4.3	8,650	8,279	4.5
Electric Customers (Commercial)	1,895	1,889	1,930	1.8	1,903	1,872	1.7
Uintah Basin (Duchesne, Daggett, Uintah Counties)							
Non Ag. Employment (thous.)*	11.5	12.0	10.8	6.5	11.3	10.3	9.7
Auth. Permit Construction (mil. of dol.)	1.0	2.8	1.2	16.7	3.1	2.2	40.9
New Dwelling Units	17	40	30	43.3	30.9	32.4	4.6
Postal Receipts (thous.)	45.3	42.8	42.2	7.3	48.1	41.6	15.6
Electric Customers (Residential)	4,789	4,770	4,496	6.5	4,658.4	4,345	7.2
Electric Customers (Commercial)	753	747	742	1.5	746.9	717	4.2
Natural Gas Customers (Residential)	4,624	4,571	4,587	0.8	4,666.1	4,573	2.0
Natural Gas Customers (Industrial)	7	8	9	22.2	7.8	9	13.3
Bear River (Box Elder, Cache, Rich Counties)							
Non Ag. Employment (thous.)*	32.0	31.2	30.6	4.6	30.4	28.9	5.2
Auth. Permit Construction (mil. of dol.)	3.4	3.9	4.1	17.1	3.7	5.6	33.9
New Dwelling Units	81	45	80	1.3	65.1	92.4	29.5
Postal Receipts (thous.)	194.5	151.6	184.7	5.3	204.9	180.8	13.3
Electric Customers (Residential)	13,900	13,851	13,376	3.9	13,658.7	13,130	4.0
Electric Customers (Commercial)	1,709	1,698	1,665	2.6	1,686.7	1,631	3.4
Natural Gas Customers (Residential)	23,082	23,050	22,963	2.3	23,245	22,447	3.6
Natural Gas Customers (Industrial)	51	50	50	2.0	48.1	48	0.2
Southeastern (Carbon, Emery, Grand, San Juan Counties)							
Non Ag. Employment (thous.)*	20.2	20.4	19.0	6.3	19.5	17.6	10.8
Auth. Permit Construction (mil. of dol.)	5.2	2.2	11.0	-52.7	2.6	2.7	-3.7
New Dwelling Units	61	35	37	65	33	49	-33
Postal Receipts (thous.)	na	na	61.5	na	na	na	na
Electric Customers (Residential)	10,585	10,557	10,138	4.4	10,439	9,860	5.9
Electric Customers (Commercial)	1,400	1,395	1,361	2.9	1,386	1,313	5.6
Natural Gas Customers (Residential)	8,566	8,475	8,363	2.4	8,559	8,311	3.0
Natural Gas Customers (Industrial)	15	15	12	25	12.3	12	2.5
Southwestern (Beaver, Iron, Washington, Garfield, Kane Counties)							
Non Ag. Employment (thous.)*	16.3	16.8	15.5	5.2	16.0	15.0	6.7
Auth. Permit Construction (mil. of dol.)	2.3	5.0	1.7	35.3	5.0	4.6	8.7
New Dwelling Units	64	112	45	42.2	91.0	106	-14.5
Postal Receipts (thous.)	92.1	84.7	84.1	9.5	98.1	71.6	37.0
Electric Customers (Residential)	10,266	10,243	9,913	3.6	10,041	9,423	6.6
Electric Customers (Commercial)	2,450	2,386	2,403	2.0	2,369	2,166	9.4

MR. J. HEINEN
CONGRESSIONAL
INFORMATION SERVICE, INC.
7101 WISCONSIN AVENUE
WASHINGTON, D.C. 20014

BUSINESS STATISTICS
Sources and Footnotes

Sources:

Agriculture farm marketings, livestock slaughter, farm prices: U.S. Department of Agriculture
Loans, Investments, deposits: Federal Reserve reports
Savings, Savings and Loan Association: Utah savings and loan institutions
U.S. Savings Bonds: U.S. Treasury Department
New Corporations: Utah Secretary of State
Tax Collections: Utah State Tax Commission
Employment data: Utah Department of Employment Security
Construction: Dodge Construction Statistics and BEBR
Air Passengers: Salt Lake International Airport, statistics service
Traffic Count: Utah Department of Transportation, Travel Analysis Unit
Visits to State and National Parks and Monuments: U.S. Forest Service; Utah State Parks and Recreation Department
Truck and car sales: Utah Automobile Dealers Registrations Service Company
Telephone, electric, natural gas customers: cooperating Utah utility companies
Net Electric Power Utilized: cooperating Utah power companies
Crude Oil to Refineries: cooperating Utah oil refineries
Copper production: U.S. Bureau of Mines
Coal production: U.S. Department of Energy
Oil and gas production: State of Utah Division of Oil, Gas and Mining

Footnotes:

* May not add to total due to rounding
[a] End of Period, includes member banks of Federal Reserve System
[b] As of the close of business on last day of the month
[c] Current year—preliminary data; previous year—final figures.
[d] Includes nonprofit and religious
[e] Includes public schools and colleges
[f] Total new construction plus additions, alterations and repairs
[g] Beginning January 1979, data reported in metric tons; to convert metric tons to short tons, multiply by 1.10231
[h] Includes Salt Lake County and Bountiful
[i] Includes Weber and Morgan Counties
[j] Includes Orem and Springville
r revised
x increase from zero or decrease to zero
na not available

UTAH ECONOMIC AND BUSINESS REVIEW Vol. 39 No. 12

UTAH ECONOMIC AND BUSINESS REVIEW
BUREAU OF ECONOMIC AND BUSINESS RESEARCH
COLLEGE OF BUSINESS
UNIVERSITY OF UTAH, SALT LAKE CITY, UTAH 84112

Second Class postage paid at Salt Lake City, Utah

DAVID P. GARDNER, *President, University of Utah*
A. BLAINE HUNTSMAN, *Dean, College of Business*

BUREAU OF ECONOMIC AND BUSINESS RESEARCH

R. Thayne Robson, Director
Frank C. Hachman, Associate Director

BEBR
college of business
bureau of economic and
business research
university of utah

STAFF OF THE BUREAU OF ECONOMIC AND BUSINESS RESEARCH

Office Staff
Mari Lou Wood, Office Manager
Cathy Crawford, Administrative Assistant
Diane S. Gillam, Associate Accountant
Laurie B. Barton, Administrative Secretary
Lee Carberry, Administrative Secretary

Research Analysts, Programmers
Ronda Brinkerhoff
Mark E. Linford
Kristin Moesinger
Stan Paca
Paul Nielsen
Mickee Roll
Randy Rogers
Gayle Taylor
Tony Wilcox
Jim Wood

Senior Research Economists
Boyd L. Fjeldsted
Rodger Weaver

Production Staff
James B. Peters, Graphics
Gary Beard, Graphics
Nolan N. Nelson, Printer